



US006021265A

United States Patent [19]

Nevill

[11] **Patent Number:** **6,021,265**[45] **Date of Patent:** ***Feb. 1, 2000****[54] INTEROPERABILITY WITH MULTIPLE INSTRUCTION SETS**[75] **Inventor:** Edward Colles Nevill, Cambridge, United Kingdom[73] **Assignee:** ARM Limited, Cambridge, United Kingdom[*] **Notice:** This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

This patent is subject to a terminal disclaimer.

[21] **Appl. No.:** 08/840,557[22] **Filed:** Apr. 14, 1997**Related U.S. Application Data**

[62] Division of application No. 08/477,781, Jun. 7, 1995, Pat. No. 5,758,115.

[30] Foreign Application Priority Data

Jun. 10, 1994 [GB] United Kingdom 9411670

[51] **Int. Cl.⁷** G06F 9/30[52] **U.S. Cl.** 395/385; 395/386[58] **Field of Search** 395/384, 385, 395/386**[56] References Cited****U.S. PATENT DOCUMENTS**

4,274,138	6/1981	Shimokawa	712/209
4,338,663	7/1982	Strecker et al.	712/228
4,839,797	6/1989	Katori et al.	712/210
4,876,639	10/1989	Mensch, Jr.	395/500.48
5,193,158	3/1993	Kinney et al.	395/591
5,327,566	7/1994	Forsyth	710/260

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

0109567	10/1983	European Pat. Off. .
0169565 A	7/1985	European Pat. Off. .
0199173	10/1986	European Pat. Off. .
0 306 920 A2	3/1989	European Pat. Off. .
0306920 A2	3/1989	European Pat. Off. .
0 324 308 A2	7/1989	European Pat. Off. .
0324308 A2	7/1989	European Pat. Off. .
58-3040	6/1981	Japan .
2 016 755 A	9/1979	United Kingdom .
20167550 A	9/1979	United Kingdom .

OTHER PUBLICATIONS

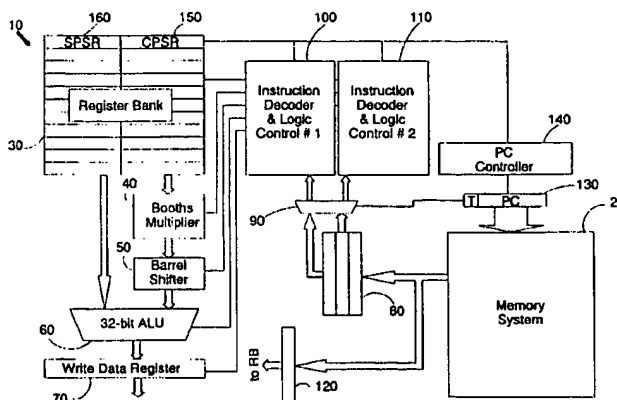
IBM Technical Disclosure Bulletin by P. F. Smith, entitled: "Extended Control for Microprocessors" vol.17 No.11 published Apr. 1975, pp. 3438-3441.

IBM Technical Disclosure Bulletin entitled: "Oncode Remap and Compression in Hard-Wired Risc Microprocessor" vol. 32 No. 10A published Mar. 1990, p. 349.

IBM Technical Disclosure Bulletin by J. C. Kemp, entitled: "Instruction Translator" vol. 15 No. 3 published Aug. 1972, p. 920.

Primary Examiner—Robert B. Harrell*Assistant Examiner*—Kenneth R. Coulter*Attorney, Agent, or Firm*—Fenwick & West LLP**[57]****ABSTRACT**

Data processing apparatus comprising: a processor core having means for executing successive program instruction words of a predetermined plurality of instruction sets; a data memory for storing program instruction words to be executed; a program counter register for indicating the address of a next program instruction word in the data memory; means for modifying the contents of the program counter register in response to a current program instruction word; and control means, responsive to one or more predetermined indicator bits of the program counter register, for controlling the processor core to execute program instruction words of a current instruction set selected from the predetermined plurality of instruction sets and specified by the state of the one or more indicator bits of the program counter register.

14 Claims, 3 Drawing Sheets

U.S. PATENT DOCUMENTS

5,392,408	2/1995	Fitch	711/202	5,481,693	1/1996	Blomgren et al.	712/225
5,404,472	4/1995	Kurosawa et al.	395/570	5,524,211	6/1996	Woods et al.	709/220
5,420,992	5/1995	Killian et al.	395/500.48	5,568,646	10/1996	Jagger	395/385
5,475,824	12/1995	Grochowski et al.	712/206	5,574,928	11/1996	White et al.	395/800.23
5,481,684	1/1996	Richter et al.	712/212	5,598,546	1/1997	Blomgren	395/385
				5,638,525	6/1997	Hammond et al.	395/385
				5,758,115	5/1998	Nevill	395/385